IN THE U.S. PATENT AND TRADEMARK OFFICE BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of	Appeal No.
Yoshiyuki MIYAMOTO	Conf. 2990
Application No. 10/025,473	Group 1751
Filed December 26, 2001	Examiner Mark T. Kopec

SUPERCONDUCTING MATERIAL AND METHOD FOR PRODUCING THE SAME

APPEAL BRIEF

MAY IT PLEASE YOUR HONORS: May 2, 2005

1. **Real Party in Interest**

The real party in interest in this appeal in the assignee, NEC Corporation of Tokyo, Japan.

2. **Related Appeals and Interferences**

Appellant is unaware of any other appeal or interference that will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

3. **Status of Claims**

Claims 1-8 are pending, which clams are original to the application as filed. The present appeal is taken from the second rejection of all of the pending claims 1-8.

4. **Status of Amendments**

No amendment was filed subsequent to the second rejection on appeal.

5. **Summary of Invention**

The invention as recited in the independent claim 1 is a superconducting material comprising a C_{20} fullerene polymer having a one-dimensional chain structure. As discussed in the paragraph bridging pages 1 and 2 of the specification, the superconductive properties may inhere in the polymer structure itself, or may be conferred or enhanced by dopants serving to inject electrons or positive holes therein (see claims 4-6).

The invention as recited in the independent claim 7 (the only other independent claim pending) is a method for making a superconducting material in which a C_{20} fullerene polymer is formed in a porous material that has a large band gap between a valence band and a conduction band, the porous material is mounted on a semiconductor substrate doped with an electron donor or acceptor, and an electric field is applied to the porous material.

6. **Issue**

The sole issue presented for review in this appeal is whether claims that admittedly satisfy the utility requirement of 35 USC §101 may nonetheless be rejected under the enablement requirement of 35 USC §112, ¶1, based solely on skepticism as to whether the invention would be operable.

7. **Grouping of Claims**

The claims are grouped separately for purposes of this appeal, inasmuch as Claims 4-8 specify the presence of positive or negative holes and/or a dopant, whereas Claims 1-3 do not.

8. **Argument**

That the claims on appeal comply with 35 USC §101 has already been specifically addressed in this application, and resolved in the appellant's favor. In particular, the first action on the merits, mailed January 27, 2004, rejected claims 1-8 under both 35 USC §101 and 35 USC §112, ¶1. The 35 USC §112, ¶1 rejection as initially imposed was a follow-on to the §101 rejection, consistent with MPEP §2107.

Appellant's response of April 8, 2004 supplied evidence and argument in traverse of the §101, which the second rejection expressly acknowledges was effective to overcome that rejection.

Yet the 35 USC §112, ¶1 rejection is repeated in the second rejection, now not as a follow-on to the withdrawn §101 rejection, but rather as a stand-alone rejection. That the stand-alone 35 USC §112, ¶1 rejection on appeal is based on the same concerns as gave rise to the follow-on 35 USC §112, ¶1 rejection that initially appeared in the Official Action of January 27, 2004, is evident from a comparison of pp. 6-9 of the earlier paper to pp. 2-6 of the rejection on appeal.

The rejection on appeal therefore plainly contravenes the instruction given in MPEP §2107.01(IV), that "[a] 35 USC 112, first paragraph, rejection should not be imposed *or maintained* unless an appropriate basis exists for imposing a rejection under 35 USC 101." (Emphasis added). Once the §101 rejection was overcome, the 35 USC §112, ¶1 rejection should have been withdrawn as a matter of course.

The Examiner's rationale in support of the repeated rejection based on an alleged lack of enablement appears at pp. 3-6 of the second rejection. The Examiner's repeated emphasis on a call for "hard data" and "conclusive evidence" reveals that his concern is not with the sufficiency of the disclosure, but rather with its accuracy. The Examiner does not contend that the specification fails to teach what is claimed; rather, he expresses continued skepticism that a skilled artisan following the detailed teachings of the specification, would achieve the properties attributed to the invention.

In other words, the position taken in the second rejection is that a prophetic disclosure in an allegedly "unpredictable" art should receive an automatic downgrade in credibility, such that the burden would then shift to the applicant to demonstrate a subsequent actual reduction to practice.

However, that is simply not now the law in this area of patent practice, nor has it ever been. Where the specification provides a scientific underpinning for the asserted utility, as

the present specification admittedly does, then the stand-alone rejection for non-enablement will ultimately not be affirmed on appeal. Compare the reversal of the rejection of claim 1 in *In re Cortright*, 165 F.3d 1353, 49 USPQ2d 1464 (Fed. Cir. 1999) with the affirmance of the rejection of claim 15 in that case.

The approach taken by the Examiner in the second rejection is thus in effect to repeat the §101 rejection while re-labeling it as a 35 USC §112, ¶1 rejection, while at the same time conceding that the true §101 rejection has been overcome. The net effect of that approach is to impose a higher standard for compliance with 35 USC §101 than is actually required by the statute or intended by the USPTO - exactly the situation that the USPTO Guidelines for Compliance with the Utility Requirement were designed to remedy.

That the rejection on appeal is more in the nature of an improper utility rejection than an actual or sustainable non-enablement rejection, is underscored by the paragraph bridging pages 5 and 6 of the second rejection. There, the Examiner calls for "conclusive evidence" that the claimed materials "produced according to the specification disclosure" possess superconductive properties (with reference to 37 CFR 1.93 and MPEP 608.03 for guidance).

Never mind that MPEP 608.03 and Rule 93 deal with the submission of working models and specimens, not declaration evidence; the point is that these provisions are designed not to

verify enablement but rather operability of the claimed invention, i.e., not compliance with 35 USC §112, ¶1 but rather compliance with 35 USC §101.

As the Board is aware, compliance with 35 USC §101 is a question of fact, whereas 35 USC §112, ¶1 is a matter of law. See, e.g., *Tronzo v. Biomet, Inc.*, 156 F.3d 1154, 47 USPQ2d 1829 (Fed. Cir. 1998). Therefore, a utility rejection under 35 USC §101 can indeed be overcome by submission of test data demonstrating that the invention made according to the teaching of the specification possesses the claimed properties; however, compliance with 35 USC §112, ¶1 is assessed as of the filing date, such that, if a rejection under 35 USC §112, ¶1 for lack of enablement is proper, then the disclosure is fatally effective as a matter of law, and no amount of property test data could change that.

We note that assertions of superconductivity are no longer considered incredible, as witness the numerous issued U.S. patents specifically claiming such materials. Indeed, U.S. Patents Nos. 5,698,497; 5,561,102; 5,380,703; 5,294,600; and 5,196,396 claim superconducting fullerenes, the very class of materials claimed herein.

The utility requirement of 35 USC §101 having been complied with as a matter of record in this application, it is believed that the repeated rejection of the claims as allegedly being based on a non-enabling disclosure under 35 USC §112, ¶1 should

also have been withdrawn and therefore should now be reversed, in the light of the above discussion.

As noted above, Claims 4-8 are independently patentable in that those claims specify the presence of positive or negative holes and/or a dopant, whereas Claims 1-3 do not. Those claims more closely agree with the detailed description in the specification, wherein the exemplified techniques involve the use of positive or negative holes and/or a dopant. However, we note that the rejection on appeal is believed to be improper as to all of claims 1-8; that the rejection on appeal is avowedly not based on any perceived shortcoming as regards scope of enablement (the Examiner instead questioning solely the operability of the invention despite acknowledging compliance with 35 USC §101); and that no allegation has been made that the presence of positive or negative holes and/or a dopant is critical to the claimed invention, much less that any evidence has been adduced to that effect.

9. **Conclusion**

From the above discussion, it is believed to be apparent that the rejection on appeal does not merit affirmance by the Board, but rather, that the rejections should be reversed. Such action is accordingly respectfully requested.

Respectfully submitted,

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10. **Claims on appeal**

1. A superconducting material comprising a structure wherein C_{20} Fullerene molecules are polymerized into a one-dimensional chain.

2. A superconducting material according to claim 1, wherein C_{20} Fullerene molecules are bound via sp^3-bond.

3. A superconducting material according to claim 2, wherein no sp^3-bond exists other than bonding portions between the C_{20} Fullerene molecules.

4. A superconducting material according to claims 1, wherein the material having a structure obtained by injection of electrons or positive holes.

5. A superconducting material according to claims 2, wherein the material having a structure obtained by injection of electrons or positive holes.

6. A superconducting material according to claims 3, wherein the material having a structure obtained by injection of electrons or positive holes.

7. A method for producing a superconducting material, comprising the steps of:

incorporating and polymerizing C_{20} Fullerene molecules in a porous material which has a large band gap between a valence band and a conduction band;

mounting the porous material incorporating the C_{20} Fullerene molecules on a semiconductor substrate doped with an

acceptor or a donor; and

applying electric field to the porous material.

8. A method for producing a superconducting material according to claim 7, wherein the porous material having a large band gap is zeolite or a BN nanotube.